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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,979	01/29/2004	Richard Frederick McNichol	HYPAC.002A	2812

20995 7590 02/28/2008  
KNOBBE MARTENS OLSON & BEAR LLP  
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EXAMINER
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STIMPert, PHILIP EARL

ART UNIT	PAPER NUMBER
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3746

NOTIFICATION DATE	DELIVERY MODE
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02/28/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcarter@kmob.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/765,979	<b>Applicant(s)</b> MCNICHOL, RICHARD FREDERICK	
	<b>Examiner</b> Philip Stimpert	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/18/2007</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first valve of claim 10 must be shown or the feature(s) canceled from the claim(s). Also, the first and second valves of claim 10 must be shown in conjunction with the piston-type pump of claim 13. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In particular, the canister of claim 11 is not disclosed in the specification.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 10-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. Regarding claim 10, the limitation of "a first valve situated adjacent to the top interior surface of the first chamber and above the first surface," is not supported by the original disclosure. The only analogous structure is the applicant's passageway 32, which is not disclosed as a valve.

6. Regarding claim 13, the original disclosure does not support a second valve in the first chamber located below the first surface in an embodiment including a piston

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pump. Again, the only analogous structure is the one-way valve 120, which is not shown or described in conjunction with a piston pump.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-7 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Regarding claim 1, line 6 recites "for hydraulic fluid," while lines 12-13 recite "a hydraulic fluid." This appears to constitute two positive recitations of a hydraulic fluid limitation, rendering the claim indefinite.

10. Regarding claim 2, the claim includes a further positive recitation of "a hydraulic fluid" on line 2.

11. Regarding claim 10, line 4 recites "the piston portion of the component," while line 7 recites "the piston rod portion of the component." Both of these limitations are repeated several times throughout the remainder of the claim. These limitations lack antecedent basis in the claim.

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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13. Claims 1-5 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney (US 6,193,476) in view of Sutliff (US 3,148,629).

14. Regarding claim 1, Sweeney discloses a piston type pumping apparatus comprising:

- a. a vertically oriented cylinder (47) having a top (48) and a bottom (22),
- b. a first passageway (col 3, ln 6-7 indicates that production fluid is discharged, entailing a passageway of some sort) for liquid in the cylinder adjacent to the top of the vertically oriented cylinder (47),
- c. a second passageway (connecting stroke piston chamber 29 to cylinder 47) for hydraulic fluid adjacent to the bottom of the cylinder (47),
- d. a piston (38) reciprocatingly mounted within the cylinder (47) having a top surface (28) configured to be in contact with liquid in the vertically oriented cylinder (47), the piston (38) further having a bottom surface (27) configured to be in contact with hydraulic fluid acting thereagainst in the direction of movement of the piston (38),
- e. a piston rod (11, 24) connected to the piston and extending slidably and sealingly through a first aperture (sealed by 20) in the bottom (22) of the vertically oriented cylinder (47), the piston rod having a bottom surface (43),
- f. a reload chamber (42) below the vertically oriented cylinder (47), the piston rod extending slidably and sealingly into the reload chamber (42) through a second aperture (below seals 20), the piston rod (11, 24) further having a third passageway (within 11) for liquid extending from the bottom surface (43) of the

piston rod to the top surface (28) of the piston (38) such that the piston rod (11, 24) connected to the piston (38) is configured to permit passage of liquid therethrough, wherein the bottom surface (43) of the piston rod is situated within the reload chamber (42), wherein the bottom surface (43) of the piston rod is configured such that liquid in the reload chamber acts upwardly against the bottom surface (43) of the piston rod in a direction of movement of the piston and wherein liquid in the vertically oriented cylinder exerts a force on the top surface (28) of the piston,

g. a first one-way valve (12) located in the third passageway configured to permit liquid to flow from the reload chamber into the piston rod and which is configured to prevent liquid from flowing from the piston rod and piston into the reload chamber,

h. a fourth passageway (4) configured for passage of liquid extending from the reload chamber to a source of liquid to be pumped,

i. a second one-way valve (5) in the fourth passageway configured to permit liquid to flow from the source of liquid into the reload chamber and which is configured to prevent liquid from flowing from the reload chamber towards the source of liquid to be pumped,

j. a receiver (40) in fluid communication with the second passageway, configured for receiving displaced hydraulic fluid, as the piston moves downwardly and wherein the receiver is configured to assist in raising the piston to pump liquid upwardly and through the first passageway.

Sweeney does not teach that the bottom surface (43) of the piston rod has a smaller area than the top surface (28) of the piston (nor a force balance resulting from such an area differential), nor that the second aperture is formed in the reload chamber. Sutliff teaches another type of well pump. Sutliff teaches that a “differential between the horizontal cross sectional area of the upper plunger 31 and that of the lower plunger 32” (col. 3, ln. 40-43) gives a pump “a tremendous advantage in operating on highly viscous oil in that the downward power assist given the plunger 30 on its downstroke by the hydrostatic pressure thus applied downwardly against said plunger operates over the full downward stroke of the plunger” (col 3, ln. 54-59). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the pump of Sweeney to decrease the area of the lower piston head (37), in order to provide a power assist to the downstroke of the piston. Sutliff also teaches that the smaller area lower piston is not sealed to the casing, and as such the analogous reload chamber extends around the lower piston. It would have been obvious then that in the combination, the reload chamber would extend around the bottom end (43) of the piston rod, and that the second aperture would therefore be formed in the reload chamber. Alternatively, if the seal between lower piston (37) and the walls of reload chamber (42) were maintained, then the diameter of the reload chamber (42) spanned by the piston (37) could also be construed as the second aperture.

15. Regarding claim 2, Sweeney teaches that the receiver (40) is configured to store the hydraulic fluid.



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16. Regarding claims 3-4, Sweeney teaches that a piston type pump (36) is connected to the receiver and is configured to assist in raising the piston.'

17. Regarding claim 5, Sweeney teaches that the pump is situated above the second passageway.

18. Regarding claim 10, the combined references teach a system for pumping. In particular, Sweeney teaches:

k. A first chamber (26) having a top interior surface (at 25 in Fig. 7), a bottom interior surface (22), and interior side surfaces (cylinder walls 47)

l. A piston and piston rod component (24, generally), wherein a piston portion (38) of the component is disposed within the first chamber (26), the piston portion (38) of the component having a first surface (28) slidably disposed within the cylinder, wherein the piston rod portion (11) has a bottom portion (37) and a surface (43) opposite to the first surface (28) of the piston portion (38) of the component, wherein the piston and piston rod component has an aperture (15) extending from the first surface to the surface opposite and configured for passage of liquid therethrough

m. A first passage (to 25) situated adjacent to the top interior surface of the first chamber and above the first surface

n. A second passage (to 40) in the first chamber located below the first surface

o. A second chamber (40) configured to contain a pressurized liquid in fluid contact with the second passage

- p. A first one-way valve (12) disposed in the bottom portion (37) of the piston rod portion of the component
- q. A third chamber (42) having a second aperture (either its diameter as closed by 37, or as discussed below) and an interior side surface (the vertical walls of 42), wherein the bottom portion of the piston rod portion of the component is disposed within the second aperture, wherein a surface (43) of the bottom portion of the piston rod portion of the component does not contact the interior side surface of the third chamber (42), and
- r. A second one-way valve (31) disposed within the second chamber.

According to the combination, the area of the first surface (28) is larger than the surface opposite (43). Also according to the combination, there may be no sealing contact between the lower piston (37) and walls of the chamber (42) of Sweeney, as taught by Sutliff, in which case there would be no contact whatsoever between the bottom portion of the piston rod portion and the interior side surface of the third chamber. Further, Sweeney does not teach that the first and second passages are valved. However, as the applicant has disclosed no structure adjacent to the top interior surface of the first chamber other than a passage, the examiner assumes that the passages taught by Sweeney fall within the scope of the applicant's claimed valves.

19. Regarding claim 11, the structure (29) encompassing the second chamber as taught by Sweeney substantially comprises a canister.

20. Regarding claims 12-13, Sweeney teaches a piston-type pump (30) associated with the second chamber.

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21. Claims 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney in view of Sutliff as applied to claim 3 above, further in view of English (US 3,135,210).

22. Regarding claims 6, 7 and 9, English teaches that power fluid used to drive a piston (col. 4, ln. 46-50) may be supplied by centrifugal pump connected to an intake line and a discharge line (col. 5, ln. 43-45). Sweeney also teaches ball check valves (ie. 5, 12, 32) for use in allowing fluid flow in one direction while preventing flow in the opposite direction. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the pump of Sweeney to provide power fluid to the piston with a centrifugal pump as taught by English. It would further have been obvious, in the process of modification, to provide a fifth passageway in the vertically oriented cylinder and a first conduit connecting the fifth passageway to the receiver, and a second conduit connecting the pump to the second passageway, as appropriate conduit arrangements for the transportation of power fluid are taught by English. Further, the relative vertical orientation of the second and fifth passageways would be an obvious matter of design choice having no significant effect on the operation of the modified pump, thus it would have been obvious to provide the fifth passageway below the second passageway. Finally, it would have been obvious to include a third one-way (as taught by any of the references, in particular English) valve adjacent to the fifth passageway in the second conduit in order to prevent backflow of power fluid from the receiver to the first chamber.

***Response to Amendment***

23. The affidavit under 37 CFR 1.132 filed 29 November, 2007, is insufficient to overcome the rejection of claims 1-7 and 9 based upon 35 U.S.C. 103(a) as set forth in the last Office action because: the affidavit introduces no objective evidence of the unexpected results or commercial success alleged therein.

24. With respect to the alleged unexpected results, the affidavit is insufficient in at least the following respects. First, no evidence beyond a statement by the affiant of the efficiency of the applicant's pump is introduced. Second, there is no nexus with the claimed subject matter, as no details of the pumps are discussed in the affidavit. Third, the affidavit speaks only of the pumps of the applicant's competitors, rather than the combination at issue in the rejection. Finally, the affidavit speaks only of calculated efficiencies with respect to the applicant's pump. It is not clear that these levels are achieved in reality, nor is it clear how an efficiency calculated a priori can possibly constitute an unexpected result.

25. With respect to the alleged commercial success of the applicant, the affidavit is insufficient in at least the following respects. First, no evidence of sales is produced beyond the affiant. Second, there is no evidence that any alleged commercial success was caused by the particular subject matter claimed in the instant application.

26. In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

***Response to Arguments***

27. Applicant's arguments, see page 6, filed 29 November 2007, with respect to the objection to claim 7 have been fully considered and are persuasive. The objection to claim 7 has been withdrawn.

28. Applicant's arguments, see page 6, with respect to the claim rejections under 35 U.S.C. 112 have been considered and are persuasive with respect to the issues previously raised. However, new grounds of rejection under 35 U.S.C. 112 have been raised by the amendment filed concurrently therewith, as detailed above.

29. Applicant's arguments, see page 6, with respect to statutory double patenting have been fully considered and are persuasive. The double patenting rejections of claims 1-7 and 9 have been withdrawn.

30. Applicant's arguments with respect to the obviousness rejection of claims 1-7 and 9 have been fully considered but they are not persuasive. Applicant argues in essence that Sweeney does not teach separate first and reload chambers. However, Sweeney teaches a pressure barrier (18) which substantially forms a division between chambers in the sense of both a mechanical and a fluid communication. The applicant's characterizations of the patents to Sutliff and English are largely irrelevant in light of the above teachings of Sweeney. Primarily, Sutliff and English are cited because they provide teachings which would motivate one of ordinary skill in the art to modify the pump of Sweeney as described in the 35 U.S.C. 103(a) rejections detailed above.

***Conclusion***

31. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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13 Feb 08